

## NOTES ON SNAKES COLLECTED IN UPPER ASSAM.

BY

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## PART II. (WITH A PLATE.)

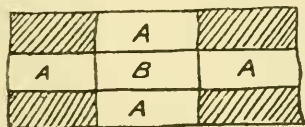
(Continued from page 623 of this Volume.)

*Coluber prasinus* (Blyth).

I had one specimen sent to me from near Jaipur (Namsang).\* The ventrals and subcaudals were 191+102. Anal divided. The scales were 19 anteriorly and in midbody, 15 at a point, two head-lengths before the anus.

*Coluber radiatus* (Schlegel).

One killed by some Assamese boatmen was called by them "goom phitti". I collected 41 specimens, of which 11 were from Sadiya, 2 from near Doom Dooma, and the rest from Dibrugarh. Of 25 specimens sexed 18 were ♀ and 7 ♂. My largest were ♀ 6'-0 $\frac{5}{8}$ ", and ♂ 6'-0". Not only is the colour of the scales remarkable in this snake, but also that of the skin. The head in life is usually a copper colour, or a hue not unlike that of dried orange peel, and this merges to a duller tone on or close to the neck. Anteriorly the body is adorned with black longitudinal stripes, usually three in number on each side, and progressively narrowing from above downwards; the lowest often interrupted. In a slough I found I noticed that these black marks were faintly visible. The skin at this situation is chequered as shown diagrammatically in the attached figure. The shaded squares are pitch black, squares A are a pale blue-grey, and square B bright yellow.



The effect is very striking. The tips of the tongue are black. On the 27th April two were reported as having been seen in company playing together. One, the ♀, was killed and proved to be gravid, the eggs being nearly matured. This is yet another instance of the conjugal attachment of snakes, which has come to my knowledge of recent years. The secretion of the anal glands is ochraceous in colour.

One specimen brought in was bleeding profusely from the mouth

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\* See remarks on this locality under *Trachischium monticola*.

and on investigation I found two black leeches in the oral cavity. This snake takes readily to water, and on one occasion my wife and I watched a large one swimming the river towards us. It breasted the current, and though a strong flood was flowing, kept its position very well, facing obliquely up stream, and making for a tangle of bush. On another occasion a gentleman watched one swimming towards his boat from across the river, and when confronted by the boatmen, it proceeded to contest the right of way, and by its truculence lost its life. My informant said that when it landed it raised itself, and expanded the neck in a contrary direction to that of the cobra, and was very strikingly handsome. It is infested with the same parasite that afflicts the *Tropidonotus piscator* and *stolatus*, i.e., the larval tapeworm (*Pterocercus* sp.).

Other events, etc., of interest are as follows :—

Date .	Sex.	Length.	Tail.	Ventrals.	Subcaudals.	REMARKS.
1907. April 26th ...	♀	1'-7 $\frac{1}{2}$ "	...	...	...	Contained 5 eggs (4+1) $1\frac{10}{16}$ " $\times$ $\frac{1}{32}$ ".
" 27th .	♀	5'-1"	11 $\frac{1}{4}$ "	244	87	
May 2nd .	♂	4'-9"	11 $\frac{1}{4}$ "	229	88	Killed in native house.
" 11th .	♂	5'-2 $\frac{1}{4}$ "	12"	233	94	
" 16th .	♀	4'-4"	...	248	...	Tail imperfect. Contained 5 eggs (4+2), $1\frac{1}{32}$ " + $\frac{1}{32}$ ".
" 24th .	♀	3'-9 $\frac{1}{2}$ "	8 $\frac{1}{2}$ "	248	83	
June 3rd ...	♀	4'-7 $\frac{1}{4}$ "	10 $\frac{7}{8}$ "	247	93	Tail incomplete Contained 7 eggs $1\frac{2}{16}$ " $\times$ $\frac{1}{32}$ ". Contained 9 eggs, 2" to 2 $\frac{1}{4}$ " long.
" 3rd .	♀	4'-10 $\frac{1}{2}$ "	1'-0"	...	...	
" 8th .	♂	4'-5"	...	...	...	
" 11th .	♂	4'-1 $\frac{1}{2}$ "	9 $\frac{1}{4}$ "	231	88	
" 16th .	♀	4'-5 $\frac{3}{4}$ "	...	...	...	
" 26th .	♀	5'-3"	1'-0"	246	94	
" 27th .	♂	5'-3"	...	...	...	
July 12th ...	♂	5'-3"	1'-0 $\frac{1}{4}$ "	228	89	

Date.	Sex.	Length.	Tail.	Ventrals.	Subcaudals.	REMARKS.
1907.						
July 26th .	♂	4'-11½"	11½"	244	92	
Oct. 27th .	♂	6'-0"	1'-1"	...	...	
" 28th .	♀	5'-6¼"	1'-0½"	250	89	
1908.						
Feb. 16th .	♀	5'-0½"	11½"	240	85	
" 18th .	♂	5'-0½"	11½"	236	88	
March 26th .	♀	5'-10½"	...	...	...	
April 13th .	♀	6'-0½"	1'-1½"	...	...	Contained 12 eggs $\frac{15}{16}$ " $\times$ $\frac{5}{16}$ ".
May 21st .	♀	5'-0½"	...	...	...	Tail incomplete. Contained 8 eggs $1\frac{3}{4}$ " long. The first and last $2\frac{1}{16}$ " long.
Oct. 22nd .	♂	5'-7"	...	...	...	Killed in a stable. Hair of a small mammal in the stomach.

*Coluber porphyraceus* (Cantor).

Two specimens; one from Sadiya and one from Namsang, near Jaipur. Both quite typical.

*Dendrophis pictus* (Gmelin).

I obtained one ♀ specimen of what I think there can be no doubt is this species. The anal is divided, the ventrals 195, and costals 15 anteriorly and in midbody, 9 behind at a point two heads-lengths before the vent.

*Dendrophis proarchos* (spec. nov.)

I collected 24 specimens of a snake of this genus which is certainly entitled to rank as a distinct species hitherto not described. With the exception of one from Sadiya, one from North Lakhimpur (Dejoo) and one from near Doom Dooma, all were obtained around Dibrugarh.

The species is extremely like *pictus*, but differs in having the anal shield entire and in the dentition. In no other species of this or the nearly allied genus *Dendrelaphis* is the anal undivided. I have prepared two skulls and the dentition is as follows. Maxillary 27 to 28 teeth,







1.



2.



3.



5.



4.



7.



8.



6.

J. Green del et lith.

1-3. *Dendrophis goreri*. 4-7. *Bungarus niger*. 8. *B. lividus*.

Date.	Sex.	Length.	Tail.	Ventrals.	Subcaudals.	Scales.			REMARKS.
						2 heads-lengths behind head.	Midbody.	2 heads-lengths before vent.	
1907.									
Oct. 14th.	♂	1'-11 $\frac{1}{4}$ "	1'-0 $\frac{3}{8}$ "	188	148	15	15	9	
" 25th.	♀	4'-0 $\frac{5}{8}$ "	1'-3 $\frac{1}{8}$ "	193	...	15	15	9	Tail slightly imperfect.
1908.									
Feb 16th.	♀	3'-4 "	1'-1 $\frac{1}{2}$ "	195	142	15	15	9	3 postoculars on both sides.
Mar. 11th.	♂	3'-7 $\frac{1}{4}$ "	1'-2 $\frac{3}{8}$ "	186	143	15	15	9	
" 25th.	♂	...	...	187	...	15	15	9	Tail incomplete.
April 13th.	♂	2'-8 $\frac{1}{2}$ "	0'-9 $\frac{3}{4}$ "	...	...	15	15	9	
May 8th...	♀	2'-10 $\frac{1}{2}$ "	0'-11 $\frac{1}{8}$ "	...	...	15	15	9	
Sept. 22nd.	♀	...	...	192	...	15	15	9	Tail incomplete.
Oct. 24th.	♂	...	...	187	...	15	15	9	

*Dendrophis gorei* (spec. nov.)

(Figs. 1 to 3 of Plate).

I acquired two specimens of a new species of *Dendrophis*. One of the types I sent to the British and the other to the Indian Museum. The first specimen I had sent to me by Mr. C. Gore from Jaipur (Namsang).<sup>\*</sup> It was a ♀, measuring 2 feet 8 $\frac{1}{2}$  inches, the tail accounting for 10 $\frac{1}{2}$  inches. The second was from near Dibrugarh (Atabari), and was 2 feet 4 $\frac{1}{2}$  inches, the tail (8 inches) being imperfect. I found a gecko in the stomach.

*Description*.—*Rostral*.—Touches 6 shields, the rostro-internasal and rostro-nasal sutures subequal, and about twice the rostro-labial. *Internasals*.—Two; the suture between them  $\frac{3}{4}$  to  $\frac{1}{5}$ , that between the præfrontal fellows,  $\frac{3}{4}$  to equal to the internaso-præfrontals. *Præfrontal*.—Two; the suture between them rather greater than the præfronto-frontal; in contact with the internasals, postnasal, loreal, præocular, supraocular and frontal. *Frontals*.—Touches 6 shields; the

<sup>\*</sup> For remarks on this locality see *Trachischium monticola*.



fronto-supraoculars more than twice the fronto-parietals. *Supraoculars*.—As long as and rather broader than the frontal along a line connecting the centres of the eyes. *Nasals*.—Divided; subequal; in contact with the 1st and 2nd supralabials. *Loreals*.—One; as long as the two nasals. *Præoculars*.—One, nearly touching the frontal. *Eye*.—Large, equals its distance to the anterior edge of the nostril. *Postoculars*.—Two. *Temporals*.—One anterior. *Supralabials*.—8, the 4th and 5th touching the eye. *Infralabials*.—6, the 6th very long, equalling the 4 preceding shields taken together; in contact with 2 scales behind. *Sublinguals*.—Two pairs, the posterior longer than the anterior; and in contact with the 5th and 6th infralabials. *Ventrals*.—193 to 199. *Anal*.—Divided. *Subcaudals*.—132? (perhaps very slightly docked). *Costals*.—Two heads-lengths behind the head 13, midbody 13, two heads-lengths before the anus 11. The rows reduce to 11 by a coalescence of the 4th and 5th rows above the ventrals. *Vertebrales*.—Very well developed, as broad as long in midbody, as broad or broader than the last row. *Body*.—Cylindrical. *Colour*.—Very like *pictus*. Dorsally bronze-brown ending abruptly in the middle of the penultimate row, the overlapped margins of the scales a bright sky-blue. A lighter vertebral stripe. Belly, ultimate and lower half of penultimate rows greenish opalescent. Head ruddy-brown above with a well defined black postocular streak continued on to the forebody. Lips and chin greenish-opalescent. *Dentition*.—For fear of damaging the specimens, I only investigated the maxillary teeth. I counted 20 on the right side, the last 2 or 3 of which appeared to be slightly longest.

*Dendrelaphis biloreatus* (Wall).

The type specimen, the only one collected, came from Sadiya, and was described and figured in this Journal (Vol. XVIII, p. 273). It is now in the British Museum.

*Simotes albocinctus* (Cantor).

Nine specimens came to bag. Three were from near Dibrugarh (Maijan and Greenwood Estates), one from North Lakimpur (Dejoo), one from near Tinsukia, three from Sadiya, and one from near Jaipur (Namsang), all of these belonged to variety *typica* (A of Boulenger's Catalogue). In the Jaipur specimen the subcaudals were 47, in the one from Dejoo 49, and in the one from Maijan 50 (Boulenger 51 to 69). A ♀ measuring 2 feet 5½ inches (the tail imperfect 4 inches)



was gravid on the 10th of July and contained 3 eggs. The supra-labials were 8, the 4th and 5th touching the eye in one specimen.

*Simotes violaceus* (Cantor).

Only two examples were obtained, one from near Tinsukia, and one from near Halem (Baroi). Both belong to variety D of Boulenger's Catalogue (Vol. II, page 223). In both the ventrals and subcaudals were  $177 + 31$  (Boulenger: subcaudals 33 to 41). In one there was a small median præfrontal.

*Oligodon dorsalis* (Gray).

A single specimen was sent me by Mr. Gore from Namsang, W. Jaipur. This was a ♀  $12\frac{3}{8}$  inches long, the tail being  $1\frac{1}{2}$  inches. The ventrals were 173 and the subcaudals 29. The scales two heads-lengths behind the head were 15, in midbody 15, and two heads-lengths before the anus 13, as is usual in this species.

SUB-FAMILY—HOMALOPSINÆ.

*Hypsirkina enhydris* (Schneider).

One specimen from Dibrugarh was brought in to me, a ♂ 1 foot 10 inches long, the tail  $5\frac{1}{4}$  inches. It agrees with variety B of Boulenger's Catalogue\* (Vol. III, p. 7). The ventrals and subcaudals were  $153 + 74$ . The costals were in 23 rows at a point two heads-lengths behind the head, 21 in midbody, and 20 at a point two heads-lengths before the anus. The 3rd and 4th rows above the ventrals blended at both steps reducing the rows from 23 to 19.

SUB-FAMILY—DIPSADOMORPHINÆ.

*Dipsadomorphus gokool* (Gray).

I got four examples of this uncommon snake, three in Dibrugarh, and one from North Lakimpur (Dejoo). One of these was brought alive, and behaved just like others of the genus with which I am acquainted. All are very plucky snakes. This one coiled itself in the typical figure of 8 fashion, and erected itself and poised, thus awaiting an opportunity to strike at me, quivering the tail with anger.

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\* I may here mention that I received a similar specimen lately from Champaran (Behar) from Mr. H. Reid. This locality zoologically is part of that with which this paper deals. The costals were 25, 21, 21, in the three sites corresponding to the above. The ventrals and subcaudals were  $158 + 59$ . The stomach was much knuckled and thickened, and full of nematode worms which I think were *Kalicephalus willeyi*.

It struck out several times, but I find that if one is on the alert with these snakes, one can see and evade the stroke, so that it cannot be considered very rapid. With many snakes on the other hand one has no chance of avoiding the stroke, such for instance as *Tropidonotus piscator* and *Echis carinata*.

Date.	Sex.	Length.	Tail.	Ventrals.	Subcaudals.	Scales.			REMARKS.
						2 heads-lengths behind head.	Midbody.	2 heads-lengths before vent.	
1907.									
Mar. 25th	♀	2'-4 $\frac{1}{2}$ "	5 $\frac{1}{4}$ "	224	87	21	21	17	
Apr. 12th	♀	2'-10 $\frac{1}{2}$ "	6 $\frac{1}{4}$ "	227	93	21	21	17	Supralabials 9, the 3rd, 4th, 5th and 6th touching the eye on left side.
.....	♀	.....	.....	227	96	21	21	17	Two præoculars. A mouse in stomach.

It is to be noted that the scales posteriorly reduce to 17 which is remarkable, as many of the species of this genus have 21 scale rows in midbody, and in all except this they reduce to 15. I have now examined 10 specimens, and in only one did the scales reduce to 15. The absorption of rows is the same as in the other species. The scales become 19 by the absorption of the uppermost into the vertebral and very shortly afterwards the 3rd and 4th rows above the ventrals coalesce.

*Dipsadomorphus cynodon* (Boie).

A single specimen was seen to fall (or spring ?) from a palm tree about 20 feet high in Dibrugarh and was pursued and killed. It conformed to variety\* B of Boulenger's Catalogue

\* I may here remark that last year I obtained two well grown examples of this snake from Mr. Jacob from Jalpaiguri, which is in the same Tract zoologically as that to which this paper refers. They were of the same variety as my Assam specimen and agreed with it in the lepidosis just referred to except that the ventrals and subcaudals were 255 + 126 and 256 + 123. The absorption of the costal rows agreed except that in the step from 19 to 17, the 4th row above the ventrals was absorbed into one of the adjacent rows. Mr. Jacob wrote that one of these specimens was being attacked by a banded Krait (*Bungarus fasciatus*), and he shot the latter and then killed the former.

(Vol. III, p. 79). It was a ♂ measuring 4 feet 9 inches, the tail being 1 foot  $1\frac{5}{8}$  inches. The ventrals and subcaudals were 248+119. The scales at a point two heads-lengths behind the head were in 23 rows, at midbody 23, and two heads-lengths before the anus 15. The reductions from 23 to 21 and 17 to 15 were due to the absorption of the uppermost row into the vertebral, and that from 19 to 17 to the absorption of the 3rd row above the ventrals into the 2nd on the right side, and the 4th on the left. All three steps occurred close together.

*Dipsadomorphus quincunciatus* (Wall.)

The type was described and figured in this Journal by me last year (Vol. XVIII, p. 272), and was sent to the British Museum. Since this I acquired a second specimen from the same locality, viz., near Tinsukia (Rangagara). This is now lodged in the Indian Museum.

It measured 3 feet  $5\frac{1}{2}$  inches, the tail being  $9\frac{3}{4}$  inches. It agrees perfectly with the first example except that the ventrals and subcaudals are 237 + 118, and the supralabials are 8, the 3rd, 4th and 5th touching the eye on both sides.

The anterior palatine teeth are barely if at all enlarged.

*Psammodynastes pulverulentus* (Boie).

In all five specimens were acquired, three from Dibrugarh, one from North Lakhimpur (Dejoo) and one from Jaipur. One of these was the gravid ♀ reported in this Journal (Vol. XVIII, p. 204), which showed that the species is viviparous. I had live examples. The one I kept some time in captivity was a truculent creature. It struck at Captain Wright to whom I was indebted for the specimen, and subsequently struck at me on more than one occasion, wounding me once in the finger when handling it. Prior to striking, it erected itself and threw the forebody into a figure of 8, much in the same way as the *Dipsadomorphus* do; another which my wife encountered at dusk erected itself, and would doubtless have struck if given the chance. I could not get my caged specimen to eat, though I supplied it liberally with small frogs every day. A frog too had been swallowed by one specimen that was brought to me dead. In the flanks there are blotches of bright ochre, and velvety black

which come prominently into view when the snake dilates itself. The dentition in my skulls is as follows:—*Maxillary* 2 or 3 small teeth followed by 2 large and fang-like; succeeded by 5 or 6 small and subequal, and then 2 large, grooved, obliquely placed, fang-like teeth.

*Palato-ptyergoid*, 8 to 10 + 22 to 25; small, subequal. *Mandibular* 2 or 3 small followed by two large and fang-like; then 13 to 16 small teeth.

*Dryophis prasinus* (Boie).

Of six specimens, one was captured in Dibrugarh, one in Sadiya, one near Jaipur (Namsang), and three in North Lakhimpur (Dejoo and at foot of Duffa Hills). The Dibrugarh, Sadiya and Dejoo specimens were green, *i.e.*, *forma typica*, the rest buff, or drab colour. This latter is a distinct colour variety, which appears to have escaped being christened. I propose for it the name *flavescens*.

Date.	Sex.	Length.	Tail.	Ventrals.	Subcaudals.	Scales.			REMARKS.
						2 heads-lengths behind head.	Midbody.	2 heads-lengths before anus.	
1908 End of March or early April.	♀	5'-7"	1'-7 $\frac{1}{8}$ "	205	167	15	15	13	Buff variety, N. Lak- himpur. Contained 3 eggs, 1 $\frac{5}{16}$ " × 7 $\frac{1}{16}$ ". 4th right supralabial divided.
?	♀	...	...	205	155	15	15	13	Buff variety. N. Lak- himpur.
April	♂	3'-9 $\frac{3}{4}$ "	1'-5"	203	173	15	15	11	Buff variety. Jaipur.
May 31st	♂	3'-6 $\frac{1}{4}$ "	1'-5 $\frac{1}{4}$ "	200	174	15	15	11	Green variety. Dibru- garh. A gecko in stomach.
?	♂	...	...	201	171	15	15	11	Green variety. Sadiya. The 3rd subcaudal entire.
?	♂	...	...	209	159	15	15	11	Green variety. Dejoo. One loreal only on left side; loreals 2 (1+1) on right side, both confluent with subjacent labials.

In the eggs noted above, though so large, there was no trace of embryos. It will be noticed that in the ♂ the costals reduce posteriorly to 11, but in the ♀ only to 13. This is no coincidence, for

I find referring to many specimens I have examined from Darjeeling and Burma that this appears constant.

The dentition in my two skulls does not appear to agree quite with Boulenger's figure of *D. mycterizans* (Catalogue Vol. III, p. 177).

*Maxilla*.—6 or 7 progressively lengthening teeth from before backwards, then a short interspace followed by 3 or 4 minute teeth, then a second gap followed by two large, subequal, grooved, fang-like teeth. (In Boulenger's figure two *suddenly* enlarged fang-like teeth succeed six small subequal ones in the front of the jaw.) *Palatopterygoid* 10 + 20 or 21, small, subequal, slightly reducing posteriorly. *Mandibular* 5 or 6 rapidly increasing posteriorly; then a short gap followed by, from 12 to 14, small subequal teeth.

#### SUB-FAMILY—ELAPINAE.

#### *Bungarus fasciatus* (Schneider).

I acquired 22 examples. Two were from near Doom Dooma, one from near Tinsukia, one from North Lakhimpur at foot of Duffa Hills, and the rest from just around Dibrugarh. Of 11 sexed 5 were ♂, 6 ♀.

Date.	Sex.	Length.	Tail.	Ventrals.	Subcaudals.	REMARKS.
1907.						
Apr. 11th	..	2'- 0 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	231	33	
June 12th	♂	2'- 10 $\frac{1}{4}$ "	..	221	36	
" 18th	♀	4'- 1 $\frac{1}{2}$ "	...	229	24	A snake ( <i>Tropidonotus stolicus</i> ) 1'-9 $\frac{1}{4}$ " long, lying at full length in gullet and stomach.
" 21st	♂	4'- 5"	...	230	38	Stomach full of scales and ventrals of a snake otherwise completely digested. Killed in the act of swallowing a snake ( <i>Zamenis korros</i> ), 4 feet 2 $\frac{1}{2}$ inches long.
" 23rd	♂	3'- 11 $\frac{1}{8}$ "	4 $\frac{1}{2}$ "	229	35	
July 2nd	♂	4'- 0 $\frac{1}{2}$ "	5 $\frac{1}{8}$ "	224	38	Ventral and costal scales of a snake recovered from the faecal contents of cloaca.
" 13th	♀	3'- 0 $\frac{1}{4}$ "	...	231	...	Tail incomplete. Reported in water, and in the act of swallowing a fish. Ventral and costal scales of a snake recovered from faecal contents of cloaca.

Date.	Sex.	Length.	Tail.	Ventrals.	Subcaudals.	REMARKS.
1907.						
Oct. 18th	♀	3'- 8 $\frac{1}{2}$ "	3 $\frac{2}{3}$ "	229	32	Found in disused well. 2 temporals on left side.
Nov. 23rd	...	...	...	...	...	Killed at night outside bungalow ; a skink ( <i>Mabuia multifasciata</i> ) in stomach.
" 28th	♀	3'- 9 $\frac{1}{4}$ "	...	230	35	
Dec. 3rd	♀	4'- 0"	...	...	...	
1908						
Apr. 13th	♂	4'- 11 $\frac{3}{4}$ "	5 $\frac{2}{3}$ "	227	37	5 eggs in the stomach are without doubt snake's eggs and measured $\frac{1}{16}$ " long. 3 of these were quite undamaged.
" 4th	...	...	...	...	...	Killed in house at night.
May 20th	...	...	...	...	...	Captured alive and sent to Parel.
Oct. 28th	♀	3'- 3 $\frac{1}{4}$ "	...	...	...	Killed in syce's hut.

A large specimen preserved in a bottle was sent to me in the act of swallowing a snake (*Zamenis mucosus*). The tail and about 2 inches of the body were protruding from the mouth. The tail measured 1 foot 4 $\frac{3}{4}$  inches, indicating that the dhaman was about 5 feet in length. Mr. C. Gore told me that the first specimen he ever saw in Assam was in the act of swallowing another snake which was grasped in the middle of the body, and was struggling for liberty. He also told me that he once knew this snake to bite a bullock which died about 20 minutes or so later. Major Leventon, I. M. S., told me that he once killed a gravid ♀ at Sibsagar, which measured 6 feet 1 $\frac{1}{2}$  inches. Unfortunately he could not be certain of the date.

This snake like all the other Kraits with which I am acquainted is singularly lethargic, and most difficult to anger. I had many brought to me alive, and had ample means of observing its disposition. I did my utmost to provoke one to strike but could not. It simply lay where it was, and made no attempt to escape. When irritated it hid its head beneath its body. When taken by the tail, and roughly shaken, it simply flattened itself, and then buried its head again beneath the body. When a stick was thrust quickly at it, it



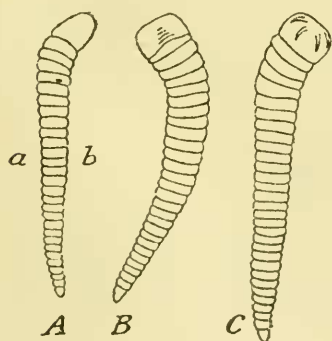
merely avoided the thrust and when advanced towards it slowly, it retracted itself leisurely. Another large one was brought to me at my hospital by several urchins, who carried it balanced over a stick with the result that every few yards it fell off, but it made no attempt at escape and allowed itself to be taken up and dropped again and again. I watched this noisy band of urchins for some minutes advancing up the road. I then took it by the tail and carried it 300 yards or so home, and worried it in every way to try to get it to strike, but it merely hid its head beneath its coils and lay before me unconcerned. Other specimens behaved similarly.

Its movements are very slow, at any time, and it frequently happens that the planters, who own motor cars, drive over them on the roads at night. The specimen which was disturbed whilst eating a fish is reported to have made off, and climbed a tree to the height of some 10 feet or so. It was knocked off by a lathi and killed.

The secretion of the anal glands is blackish, reminding one of mercurial cream in appearance and consistency. The eye is black as in other kraits, the pupil not being visible.

This like many other snakes is very much infested with parasites. I found two different nematode worms in the stomach, which Dr. Annandale had identified for me as *Kalicephalus willeyi*, and larvæ and immature forms of a species of *Ascaris*. There were many tape worms too in the abdominal cavity usually convoluting themselves

beneath the lining membrane. These are larval forms of a species of *Pterovercus*. The maggot-like parasite *Porocephalus brotali* was also frequently found in the abdominal cavity (see figure attached).  
*Dentition*.—I cannot agree with Boulenger's description of the fangs (Catalogue Vol. III, page 365), which he says are grooved in this genus. He seems to suggest that the fang is not tubular, but as far as I am aware the fangs of all poisonous Indian, I may say, Asian, snakes



*Porocephalus brotali*, ( $\times 8$ .)

A. Profile (a) dorsal (b) ventral borders.

B. Dorsal aspect.

C. Ventral aspect showing hooklets.

are tubular. On the anterior face of the fangs there is a shallow



groove, which is the seam marking the spot where the circumflexed walls of the canal have become blended.

The *maxilla* has two moderate tubular fangs placed anteriorly side by side (unless one has been shed). These are grooved on their anterior faces. Behind these are (3 or 4) small subequal teeth, which are grooved on their outer faces. *Palato-ptyergoid* 12+11 or 12, small, subequal, grooved on their inner faces. *Mandibular* 16 or 17, small, subequal, and grooved on their outer faces. It will be noticed in each case that the grooves are on the face opposite to the side occupied by the sac or tract, as the case may be, from which the fang or teeth are produced.

*Bungarus lividus* (Cantor).

I had one specimen sent to me from Bindukuri near Tezpur by Mr. A. E. Lloyd. This is much the largest specimen I have ever seen measuring 3 feet 2 inches, the tail  $3\frac{3}{4}$  inches. The ventrals and subcaudals were 215+37. The vertebrae were but slightly enlarged, the length at midbody distinctly exceeding the breadth. Mr. Lloyd told me he had had the specimen some 12 years, hoping some day to meet some one who could tell him what it was. It had bitten a cooly woman on his Estate at about 10 o'clock one night whilst she sat under the eaves of the verandah of her hut eating her evening meal. She was conscious the next morning, and spoke in answer to the questions put to her concerning her accident. She died some time during that day, the hour he does not remember. Unfortunately no records of her case were available after this long lapse of time.\* (Compare the Vertebrae in fig. 8 of our plate with those of *B. niger* in figure 7).

*Bungarus niger* (spec. nov.)

(Figs. 4 to 7 of Plate.)

I have already referred to this Krait as a definite and valid species apart from *lividus*,† but as yet have not published a description in detail. I collected 9 specimens, 7 in Dibrugarh, 1 from Sadiya, and one from Jaipur.

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\* I may here record the receipt of a specimen of this Krait from Jalpaiguri from Mr. Jacob, I.F.S., since this locality is zoologically part of the Brahmaputra Valley. This specimen was a young one measuring 1 foot  $1\frac{1}{4}$  inches. The ventrals and subcaudals were 212+39. The vertebrae were but feebly enlarged.

† Poisonous Terrestrial Snakes of our British Indian Dominions, 1908, pp. vii and 19.

Date.	Sex.	Length.	Tail.	Ventrals.	Subcaudals	REMARKS.
1907.						
... April 23rd.	♂	2' 9"	...	225	53	Old spirit specimen.
May 17th.	♂	3' 4 $\frac{3}{4}$ "	5 $\frac{1}{2}$ "	229	54	
June 18th.	♂	2' 5"	4 $\frac{1}{4}$ "	224	52	Found in a well.
?	♂	4-0 $\frac{1}{2}$ "	6 $\frac{1}{8}$ "	216	51	
Oct. 17th.	♂	3' 3 $\frac{1}{4}$ "	5 $\frac{1}{2}$ "	223	53	Head and forebody from Sadiya. Killed in a grain godown in the bazaar at night.
1908.						
June 1st...	♂	3'-10 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	221	55	
" 17th.	♂	3' 8"	6"	222	51	Killed at night, passing through chowkidar's feet.

The snake is very much like *lividus* with which it was confused by Sclater\*. I have examined two of the three examples he referred to which prove to be examples of *niger*: the third probably a true *lividus* is no longer in the Indian Museum. I have now examined 18 specimens of *niger*, and 13 of *lividus* and find that in the former the vertebrae are broader than long in the middle of the body, and the ventrals and subcaudals are more numerous. In the latter the vertebrae are but slightly enlarged on the body. Our artist has shown them distinctly broader than is actually the case in figure 8 of our Plate. In all my specimens the length of these shields exceeds the breadth at midbody. As in other Kraits the eye in life is quite black so that the pupil cannot be seen. The tongue tips too are white. The secretions of the anal glands is black.

*Description*.—*Rostral*.—Touches 6 shields; the rostro-internasal and rostro-nasal sutures are subequal, and fully twice the length of the rostro-labials. *Internasals*.—Two; the suture between them is about half that between the præfrontal fellows. *Præfrontals*.—Two; the suture between them is rather greater than the internaso-præfrontals; in contact with internasals, post-nasals, præoculars, supraoculars, and frontal. *Frontal*.—Touches 6 shields, the fronto-parietals rather the longest. *Supraoculars*.—Length about  $\frac{2}{3}$  to  $\frac{3}{4}$ , the frontal, breadth less than  $\frac{1}{2}$  the frontal along a line connecting the centres of the eyes. *Nasals*.—Divided; in contact with 1st and 2nd supralabials. *Præocular*.—One, barely reaching crown. *Postoculars*.—Two. *Temporals*.—One; in contact with the 5th and 6th supralabials.

\* Journal, As. Soc., Bengal, Vol. LX, p. 246.

*Supralabials*.—7 : the 2nd narrowest, distinctly more so than the 1st and 3rd ; the 3rd and 4th touching the eye. *Infralabials*.—4 ; the 4th largest, and in contact with two scales behind ; the 3rd and 4th touching the posterior sublinguals. *Sublinguals*.—Two pairs, the anterior rather larger. *Costals*.—Two heads-lengths from head 15, midbody 15, two heads-lengths before anus 15. *Vertebrals* well developed, broader than long in midbody. *Keels* absent. *Apical pits* absent. *Ventrals*.—216 to 231. *Anal*.—Entire. *Subcaudals*.—47 to 57, all entire. *Colour*.—Uniform black above, belly whitish, more or less sullied, or mottled with slatish behind, especially beneath tail. *Sides of throat, chin, and lips* some times tinged yellow. *Dentition*.—*Maxillary*.—Two large tubular fangs side by side in front, succeeded after a gap by 2 or 3 small subequal teeth grooved on their anterior-external aspect. *Palato-ptyergoid* 11+11, small, subequal ; the posterior pterygoid gradually reducing in length ; grooved on their inner faces. *Mandibular* 17, the 3rd, 4th and 5th rather longest, grooved on their outer faces.

*Naia tripudians* (Merrem).

Of 15 specimens collected, three were from Sadiya, two from near Tinsukia (Rangagara), one from North Lakhimpur (Dejoo), two from near Doom Dooma (Hansara), two from near Jaipur, and the rest from Dibrugarh. All of the specimens belonged to variety *fasciata*, some being olive-brown and others blackish. Mr. C. Gore tells me however that last year he killed a specimen in his tea-house at Barahapjan with perfect spectacles on the hood (var. *typica*). Two specimens from Dibrugarh, and one from Jaipur had the scales in 19 rows at midbody. In all the rest there were 21, but whether the costals were 19 or 21 at midbody, they reduced to 15 at a point two heads-lengths before the anus, except in one instance when they came to 13, the rows in midbody being 19. One example had eaten a toad (*Bufo melanostictus*). *Dentition*.—In two skulls before me this is as follows:—*Maxillary*.—A pair of tubular fangs placed side by side anteriorly, followed after a gap by one small tooth grooved on its outer side. *Palato-ptyergoid* 7 to 8+11 to 15, small, subequal, grooved on their inner side. *Mandibular* 14, the 3rd and 4th rather longest, grooved on their outer faces.

The cobra appears to be far less common in Assam than it is in most parts of India.

*Naja bungarus* (Schlegel).

I only secured one specimen, though the hamadryad would appear to be by no means uncommon in Assam. The one brought to me was a ♂ 11 feet 5 inches in length, the tail 2 feet  $1\frac{1}{2}$  inches. This was killed within 3 miles of Dibrugarh. The ventrals were 243, and the subcaudals 93: the 1st, 3rd, 4th and 5th only of the latter being entire. The scales at a point two heads-lengths behind the head were 17, in midbody 15, and two heads-lengths before the anus 15. The reduction from 17 to 15 was brought about by the coalescence of the 4th and 5th rows above the ventrals. The vertebral row was slightly enlarged. It was olive-brown, rather darker in shade posteriorly, and had very obscure light narrow bands which became much more apparent on separating the scales. The fang was  $\frac{3}{8}$  inch long.

Though unfortunate in acquiring specimens, I was able to collect a good deal of information about this snake from various planters and others.

Mr. Gardiner of Tezpur, who has captured specimens for the Calcutta Zoological Gardens, was also successful in securing the living specimen sent last year to our Society's collection. He tells me the Assamese call this and the cobra "fatty sap."

Mr. J. H. Baddock told me that one was killed some years ago at Margherita, which measured 14 feet 6 inches. Mr. N. C. Manders' coolies killed another specimen of the same length at Talup on the 17th October last year. I wrote to him about it, and he sent me a sketch of the shields on the head which placed the identification beyond question. This was found asleep in a drain in the day-time by his coolies, and when disturbed, menaced them with expanded hood. It was, he says, black with a pale throat. His coolies, who are Indians, probably Santals, called it "nag," and "nauk samp." He says this creature called to mind another which was killed in or near the same drain about 7 years before, measuring about 10 feet. This was a truculent beast that used to stop the coolies going along the road.

As regards food, Mr. Moore told me that he well remembers one being killed in North Cachar which, when cut open, contained a large monitor lizard. Here I may remark that another specimen killed at Buxa Dooars last year, measuring 9 feet  $11\frac{1}{2}$  inches, was found to have swallowed a large monitor lizard 3 feet 9 inches long. Captain

Mackenzie, my informant, says one of the sepoy's of his detachment was out after a khakur (*Cervulus muntjac*). When he fired the hamadryad went for him, and he fortunately shot it too.

I have for many years been trying to elicit information on the breeding of this snake. Mr. A. J. Harrison told me that at Meckla Nuddee (across the river above Dibrugarh) he has encountered 3 hamadryads in five years. One he saw in a hollow tree, on the ground sitting on eggs. As he could not remember precisely the date, he sent for two Miris who were with him at the time. They said it was in the middle of May and that the eggs were about 30 in number. Mr. Harrison shot the snake. These men said further that on their way down to the Mills that day (15th May), they had passed a similar snake coiled upon her eggs, with her head up and hood dilated as they passed. They said you may always be sure they have eggs when they sit like that ready to strike.

Mr. W. A. Jacob, I. F. S., from whom I received a small hamadryad from Jalpaiguri last year, told me that a pair of hamadryads were reported as having been "seen in copula" and killed in a tea-garden close to him at Jalpaiguri at the end of April or early May 1908. Mr. Lister too, of Pashok near Darjeeling, told me that the natives around him say that the hamadryad has young in April, and it appears a female was killed there with 23 eggs in the abdomen.

*Dentition*.—This in my large specimen is as follows :—*Maxillary*.—Two large tubular fangs side by side anteriorly, followed after a gap by 3 small teeth grooved on the outer sides. *Palato-ptyergoid* 8 to 9 + 10 to 12, grooved on their inner faces. *Mandibular* 15, the 3rd and 4th longest; grooved on their outer faces. The poison gland measured  $1\frac{3}{8}'' \times \frac{9}{16}'' \times \frac{8}{16}''$  high.

*Callophis maclellandi* (Reindardt) (var. nov. *gorei*).

I received three specimens of a new variety of this snake from Mr. Gore from Jaipur.\* This I propose to call *gorei*. The general colour of the snake is similar to that of the other varieties, viz., a bright berry-red.

It is peculiar in having no black rings round the body, and no black vertebral line. This latter is replaced by a series of small distant black spots. The type I sent to the British Museum and the second specimen to our Society's collection. The type was a ♀ 1 foot 10 inches long,

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\* See remarks on locality under *Trachischium monticola*.



the tail being  $1\frac{1}{2}$  inches. The ventrals and subcaudals were  $241 + 46$ . The second was a ♂. The ventrals and subcaudals were  $219 + 30$ . The third very young, with 223 ventrals, and 31 subcaudals.

The type was sent to me alive. It exhibited a distaste to being handled but could not be provoked to bite an object; when taken by the neck a good large drop of poison collected below the rostral through which the tongue was protruded. It flattened itself posteriorly under excitement.

#### AMBLYCEPHALIDÆ.

##### *Amblycephalus monticola* (Cantor).

Two specimens were collected. One captured in Dibrugarh, and the other at Jaipur. It is essentially a hill snake, so that it is remarkable to find it in the plains as far distant from the hills as Dibrugarh. The ventrals and subcaudals were  $188 + 85$ , and  $190 + ?$ . There is nothing special to remark upon, except that the secretion of the anal glands is custard-like in colour and consistency.

#### VIPERIDÆ.

##### *Lachesis gramineus* (Shaw).

The green pit-viper is not very common in the plains of Assam. I got 7 specimens in all. One was from Jaipur, one from North Lakhimpur (Joyhing), and the rest from around Dibrugarh. One specimen was greenish-yellow with a mustard-yellow flank line. In the Joyhing specimen the flank line was chocolate and white as noted in specimens from the Khasi Hills.

Date.	Sex.	Length.	Tail.	Ventrals.	Subcaudals.	REMARKS.
1907.						
April 3rd...	♀	1'-11 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "	164	60	Contained 2 eggs (1 in each ovary), $\frac{3}{4}$ " long.
Sept. ...	♀	2'-5 $\frac{1}{2}$ "	5"	...	...	A rat in stomach, and large mass of matted hair in cloaca.
Nov. 9th...	...	..	...	169	56	A mouse in the stomach.
May 7th...	♂	1'-10 $\frac{1}{2}$ "	...	169	66	
?	♀	...	...	175	55	

One encountered in November was found lying on a low bush in jungle. It refused to stir itself, though probed and hustled with a stick. It finally wreathed itself round the stick, and was removed from the bush, but offered no malice.